Agilent 1220 Infinity LC Mobile Upgrade Kit

User Manual

Agilent Technologies

Notices

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WARNING

A WARNING notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a WARNING notice until the indicated conditions are fully understood and met.

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This chapter gives an introduction to the use of the mobile kit.

Introduction

The Agilent 1220 Infinity Mobile LC Solution is an Agilent 1220 Infinity LC with integrated variable wavelength or diode array detector and a mobile upgrade kit that enables transportation. The 1220 Infinity LC Mobile Upgrade Kit consists of functional parts that allows the Agilent 1220 Infinity LC to be mounted into a mobile lab so it can be moved to different locations to access remote measurement sites. The main component is the attenuation unit which acts as a shock absorber to protect the instrument during transit or from influences of operators moving in the mobile lab. A solvent bottle unit keeps the bottles fixed to the instrument. A column wire mesh keeps the column safe in the column heater and the 'mobile solvent compartment' secures the solvent bottles during operation of the instrument.

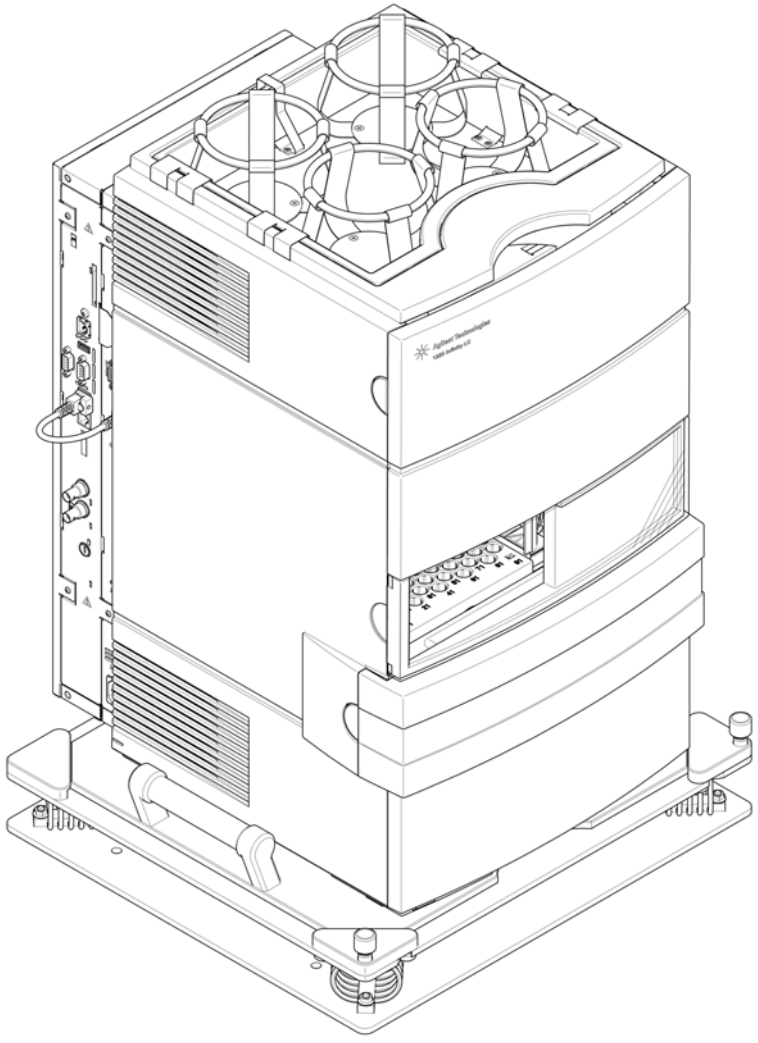

Figure 1 Agilent 1220 Infinity Instrument with attached mobile kit

Application Examples

When samples of interest are locally remote from the lab, the lab has to come to the samples. GC and GC/MS based mobile labs have been around for quite some time but the need for mobile LCs has become a more burning issue recently. Mobile LC applications range from analysis of non-volatile pesticides in environmental and food applications, monitoring of drugs or testing of counterfeit drugs. It can also be used in teaching, when a mobile lab goes to students residing in remote areas. The diode array detector integrated in the Agilent 1220 Infinity LC enables spectra analysis for purity identification and comparison with self-created library data.

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Site Requirements and Specifications

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This chapter provides information on environmental requirements, physical and performance specifications.

Site Requirements

Bench Space

The attenuation unit has a footprint of 480 mm (18.9 in) in width and 445 mm (17.5 in) in depth.

The overall room specified for operation (width x depth x height) of 560 mm (22.1 in) x 665 mm (26.2 in) x 970 mm (38.2 in) already includes the space for a complete 1220 Infinity LC Instrument mounted onto the attenuation unit and considering the necessary room for air circulation, electrical connections and safety area for the possible movement of the instrument on the attenuation unit.

For a comfortable handling of the solvent bottles additionally 20 cm (7.9 in) should be kept free above the bottles.

See Figure 2 on page 11 for more details.

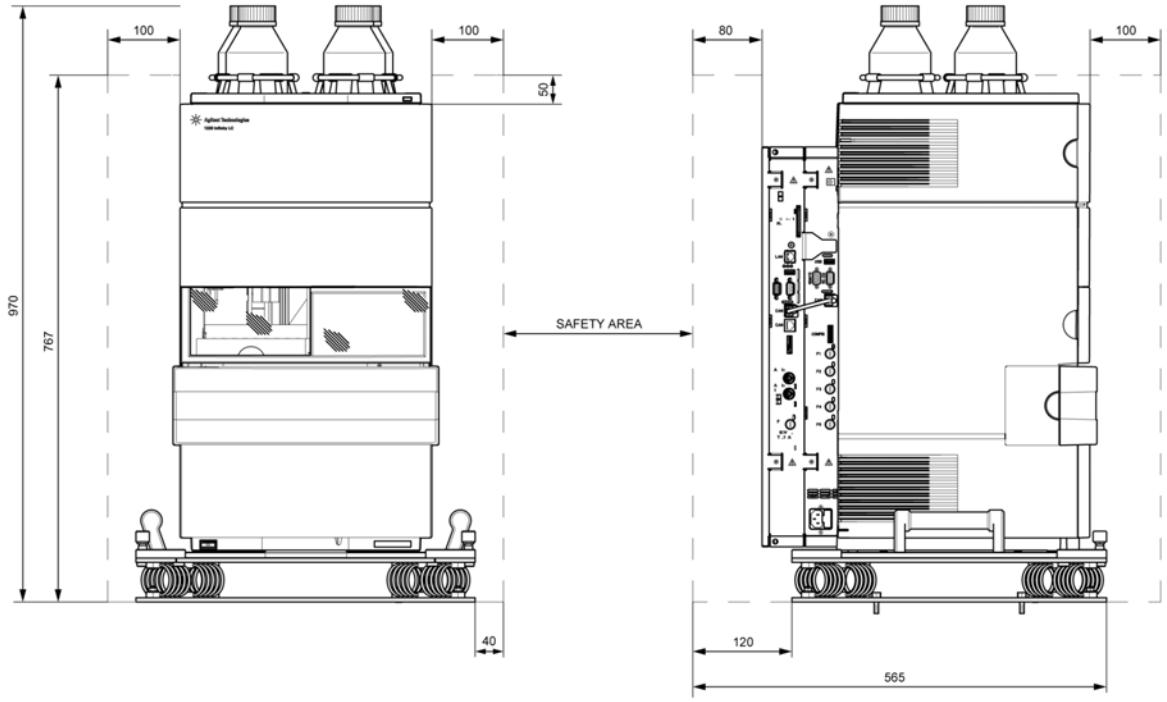

Figure 2 Required space for a 1220 Infinity LC Instrument installed to a mobile upgrade kit (numbers given in mm)

Bench Material and Strength

A proper bench must be chosen under the aspect that it must bear the combined weight of the instrument with solvent bottles and the mobile kit.

The bench material must be suitable for a proper fastening solution.

Fastening Solution

Because of the expected varieties in bench material and strength the fastening material is not included in the kit.

A suitable fastening solution (screws or bolts) must be chosen to secure the attenuation unit to the bench of the mobile lab.

NOTE This solution must be strong enough to withstand the forces that will result from the possible accelerations that can occur in a moving vehicle (app. 2000 N per screw, based on a calculation with 1 G acceleration and the weight of a G4294B).

NOTE The head of the chosen screws or bolts must not stand out more than 15 mm on top of the attenuation unit's bottom plate.

The attenuation unit comes with four 8.5mm (0.33 in) diameter holes prepared in the lower plate and four 20 mm (0.79 in) diameter holes located directly above them in the top plate. This allows the use of a 14 mm (9/16 in) nut for tightening the screws or bolts.

See Figure 3 on page 13 for the layout information of the holes that must be prepared to the bench.

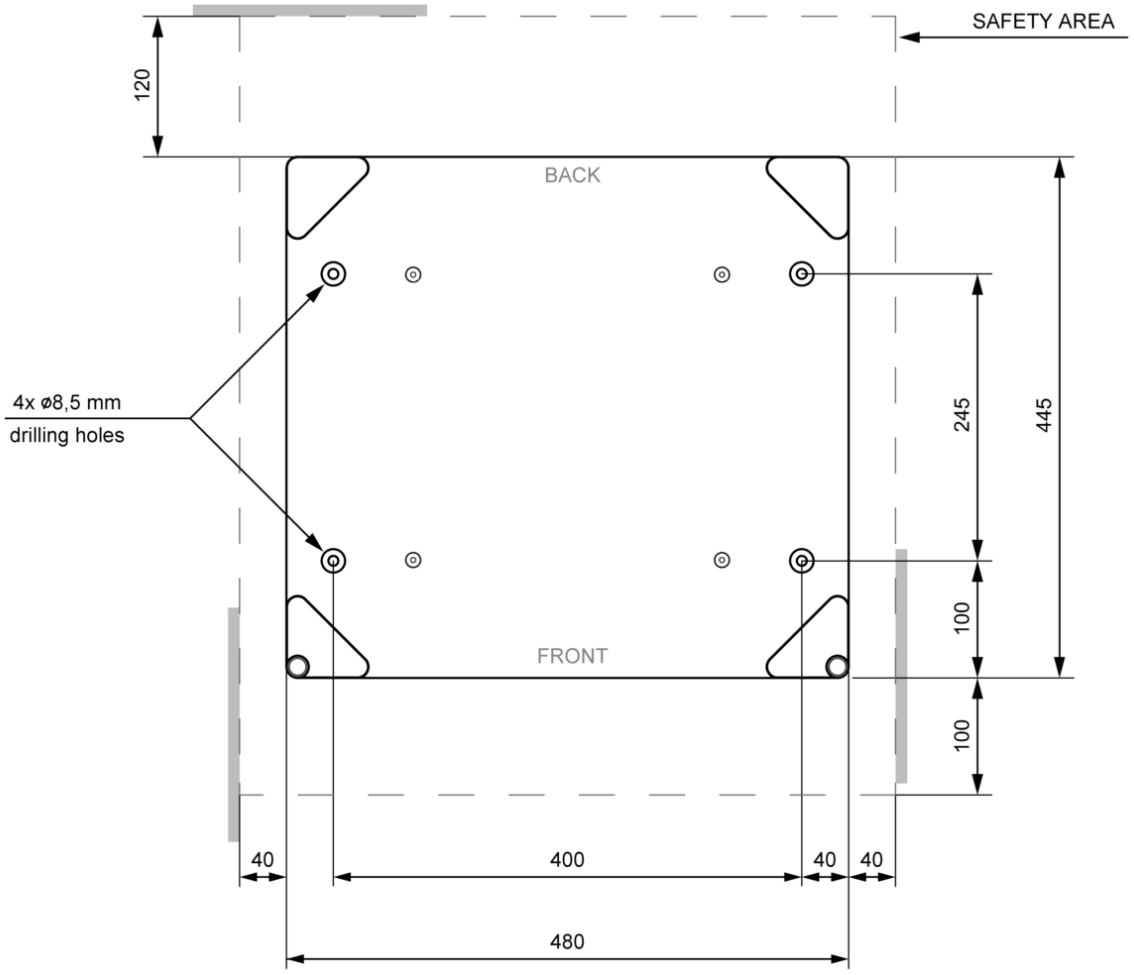

Figure 3 Dimensions of the attenuation unit

Specifications

Physical Specifications

Table 1 Physical Specifications

Type	Specification	Comments
Weight (all parts)	14.2 kg (31.3 lbs)	
Dimensions of the attenuation unit (height x width x depth)	73 x 480 x 445 mm (2.9 x 18.9 x 17.5 in)	See "Installing the Attenuation Unit to the Bench" on page 28 for more information regarding safety space.

Performance Specifications

The performance specifications show details about the performed test patterns.

Table 2 Performance Specifications

Type	Specification	Comments
Vibration Test	Outdoor	Agilent internal test guidelines

3 Installation

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This chapter provides information on unpacking, checking on completeness, and installation of the mobile kit.

Cautions and Warnings

WARNING

Personal injury or damage to the system

The system is bulky and heavy.

➔ Lift the instrument with at least two persons.

WARNING

Sharp metal edges

Sharp-edged parts of the equipment may cause injuries.

➔ To prevent personal injury, be careful when getting in contact with sharp metal areas.

CAUTION

Damage to the system

If the handle plate is not fixed precisely, the mobile system may tumble or slide off the bench.

➔ Use the handle plate only if it is fixed correctly to the instrument.

NOTE

Please note that the design of the *1220 Infinity mobile solution* is intended for protecting the instrument from influences during transit. Analytical measurement however has to be conducted under stationary conditions.

NOTE

Operating the 1220 Infinity LC in a mobile lab environment can require special equipment or facilities to comply with local safety regulations (e.g. special solvent waste and storage containers). Please verify that these regulations are met before you operate the 1220 Infinity LC in your mobile lab.

Unpacking the Module

Damage to the module

If the delivery packaging shows signs of external damage, please call your Agilent Technologies sales and service office immediately. Inform your service representative that the instrument may have been damaged during shipment.

CAUTION

"Defective on arrival" problems

If there are signs of damage, please do not attempt to install the module. Inspection by Agilent is required to evaluate if the instrument is in good condition or damaged.

➔ Notify your Agilent sales and service office about the damage.

➔ An Agilent service representative will inspect the instrument at your site and initiate appropriate actions.

Delivery Checklist

Ensure all parts and materials have been delivered with the mobile upgrade kit. The delivery checklist is shown below. Please report missing or damaged parts to your local Agilent Technologies sales and service office.

p/n	Description
G4292-60001	Mobile solvent compartment Includes 4 prefixed bottle holders and 4 Leak Tub brackets to fix it to the module's solvent compartment
G4292-60000	Attenuation unit Shock absorbing unit to mount on the Mobile Lab's bench
G4292-60003	Handling plate Pre-connected to the Attenuation unit (see "Installing the Handle Plate to the 1220 Infinity LC Instrument" on page 20 for further instructions)
G4292-40000	Column wire mesh To protect the column
G4292-00001	SSV support Needs to be installed when a solvent selection valve is installed

NOTE The required fastening bolts or screws are not delivered with the mobile upgrade kit and a proper solution must be chosen. See "Site Requirements" on page 10 for more details.

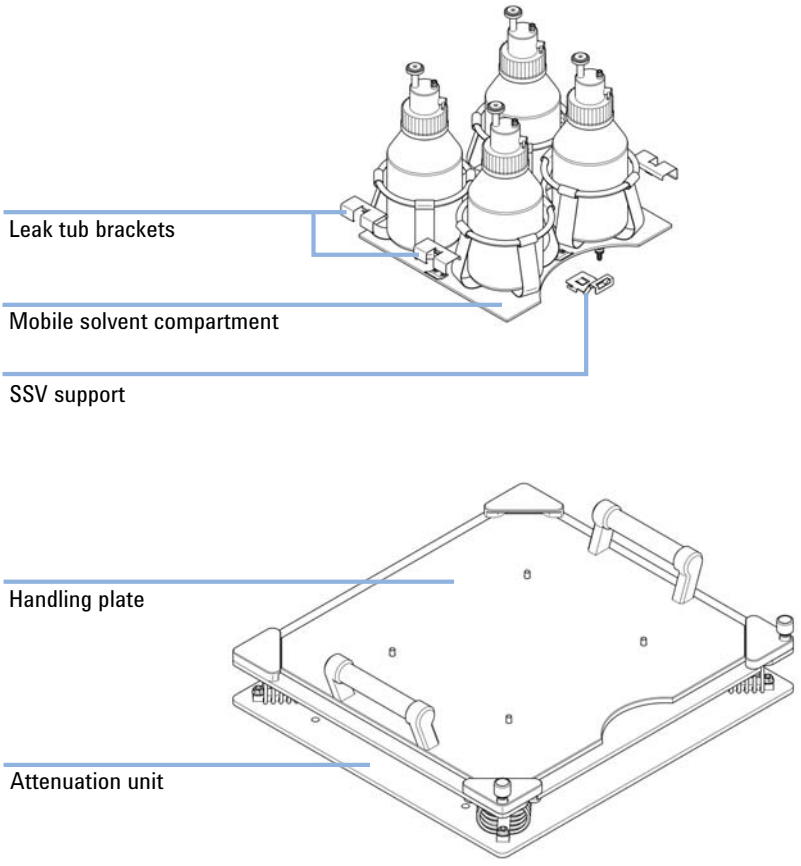


Figure 4 Mobile Kit Overview

Installing the Handle Plate to the 1220 Infinity LC Instrument

WARNING

Personal injury or damage to the system

The system is bulky and heavy.

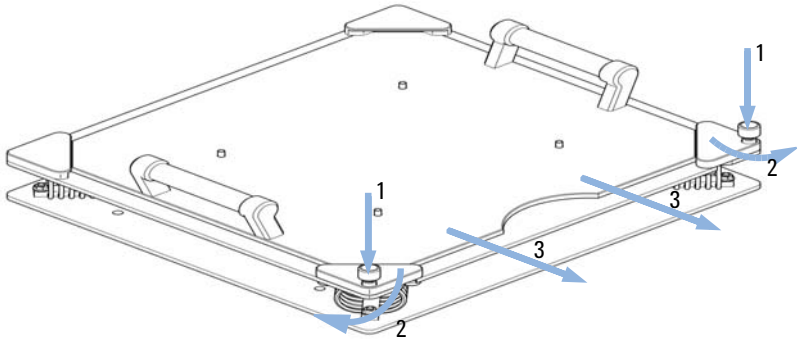
➔ Lift the instrument with at least two persons.

1 Lay the 1220 Infinity LC Module carefully on its rear plate.

NOTE

For the G4290B it is necessary either to position the bottom of the instrument slightly free over the bench's edge or to lay it onto the carton box of the solvent compartment.

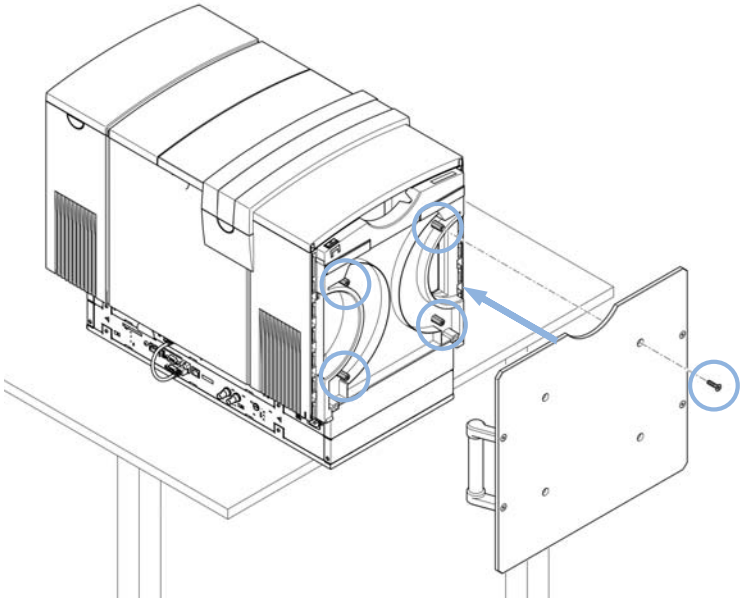
2 Push on the two lock pins (1) to release the front fixing angles (2) and separate the handling plate (3) from the rest of the attenuation unit.



3 Use the four delivered screws to mount the handle plate to the bottom of the 1220 Infinity LC instrument. The holes for the screws are already prepared in the bottom of the instrument.

NOTE

Pay attention that the side with the concave cut-out section is orientated to the instrument front.



4 Verify that the screws are fixed and carefully bring the instrument back into the upright position.

Installing the Solvent Selection Valve Support

When

The Solvent Selection Valve Support needs to be installed if a solvent selection valve (SSV) is used with the instrument.

Parts required

p/n	Description
G4292-00001	SSV support (delivered as part of the G4292-60000 attenuation unit)

Preparations

If SSV is already installed:

- Unplug the SSV.
- Clear the solvent compartment.
- Remove the whole top cover with the SSV still attached to it.

WARNING

Sharp metal edges

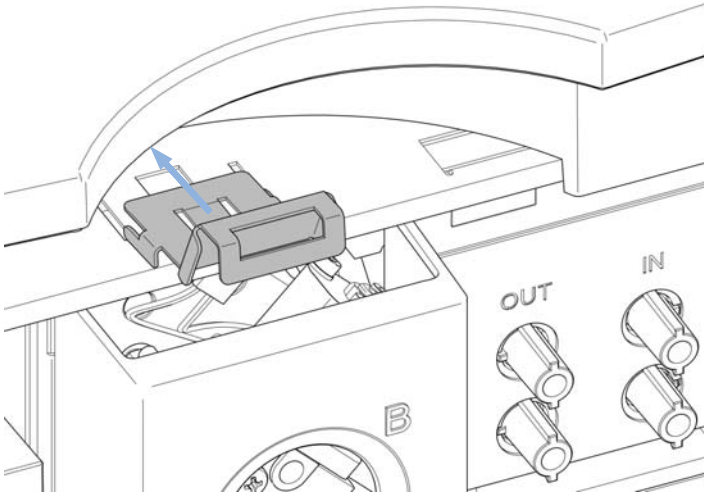
Sharp-edged parts of the equipment may cause injuries.

➔ To prevent personal injury, be careful when getting in contact with sharp metal areas.

NOTE

When the SSV support is installed, the SSV cannot get attached to the top cover without removing the top cover.

1 Take the SSV-Support and slide it into the slits in the metal cover above the gradient valve.



2 If the SSV was already installed:

- Reinstall the top cover.
- Connect the SSV.

OR

If the SSV was not already installed:

- Remove the top cover.
- Fix the SSV to the top cover.
- Reinstall the top cover.
- Connect the SSV.

Installing the Mobile Solvent Compartment

Parts required	p/n	Description
	G4292-60001	Mobile solvent compartment including 4 special brackets

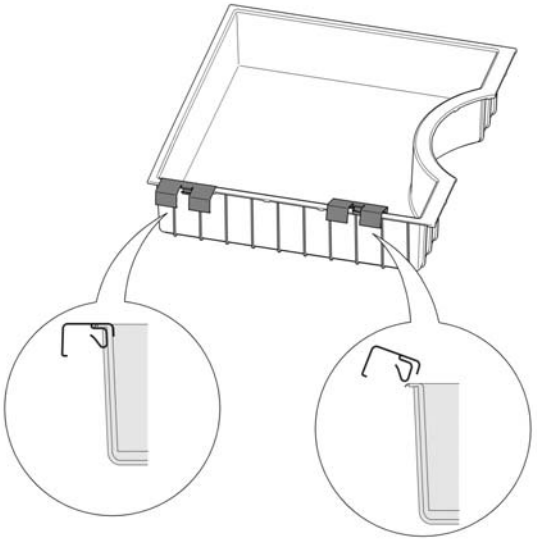
WARNING

Sharp metal edges

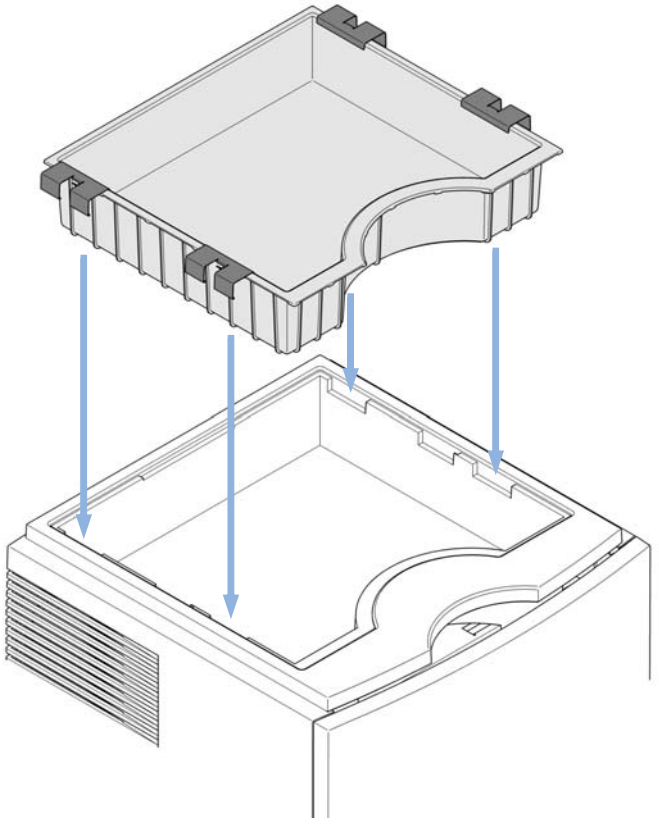
Sharp-edged parts of the equipment may cause injuries.

➔ To prevent personal injury, be careful when getting in contact with sharp metal areas.

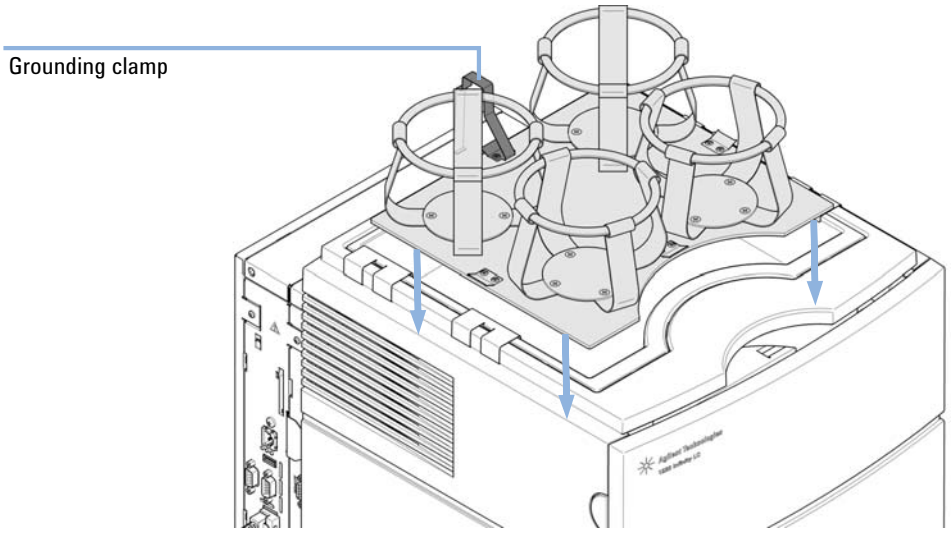
1 Take out the grey solvent bottle container of the instrument's top cover and attach the 4 leak tub brackets to it (two on each side). Look at the instrument's top and identify the referring spaces (where the arrows in the picture of step 2 on page 25 point to). This is the dedicated position for middle part of the clamps. This information is necessary for a correct positioning of the clamps. It is hard to correct their position once they are installed.



2 Now take the leak tub and reinstall it to the top cover. Verify that the leak tub brackets properly hook in underneath the top cover on the instrument's side.



3 Take the mobile solvent compartment and push it into the solvent container. The two metal clips will grip into the solvent container's plastic. On the rear of the mobile solvent compartment is the grounding clamp which needs to hook into the metal sheet between the board extension and the main assembly.



Installing the Column Wire Mesh

Parts required	p/n	Description
	G4292-40000	Column wire mesh

1 Put the column wire mesh with its open side facing to the top into the column heater assembly.

2 Position the column in the Column wire mesh so that it is fixed properly.

Installing the Attenuation Unit to the Bench

The bench holding the instrument requires 4 screws or bolts to secure the attenuation unit of the 1220 Infinity Mobile LC Kit to the bench. This fastening material is not provided from Agilent because of the unpredictable situation of bench material and dimension.

Tools required

Description
Wrench (size depending on chosen fastening material)

Parts required

p/n	Description
G4292-60000	Attenuation unit

Preparations

Prepare the appropriate fastening material (4 proper screws or bolts) and corresponding tools for attaching the attenuation unit onto the desired surface.

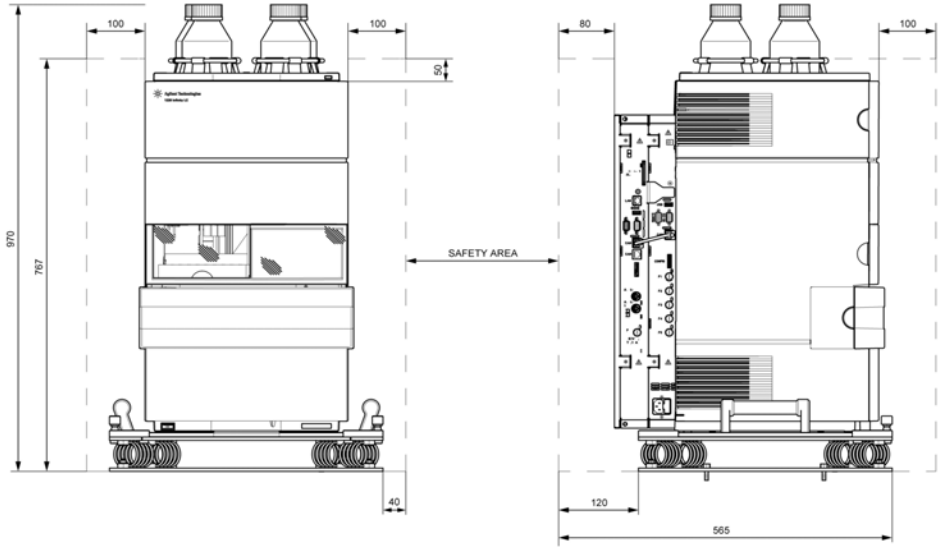
Four 8.5 mm (0.33 in) holes are prepared on the lower plate of the attenuation unit and four equivalent 20 mm (0.79 in) holes in the top plate above allowing the use of a 14mm nut.

The screws or bolts must withstand a maximum drag force of 2000 N and their head should not stand out more than 15 mm out of the lower plate.

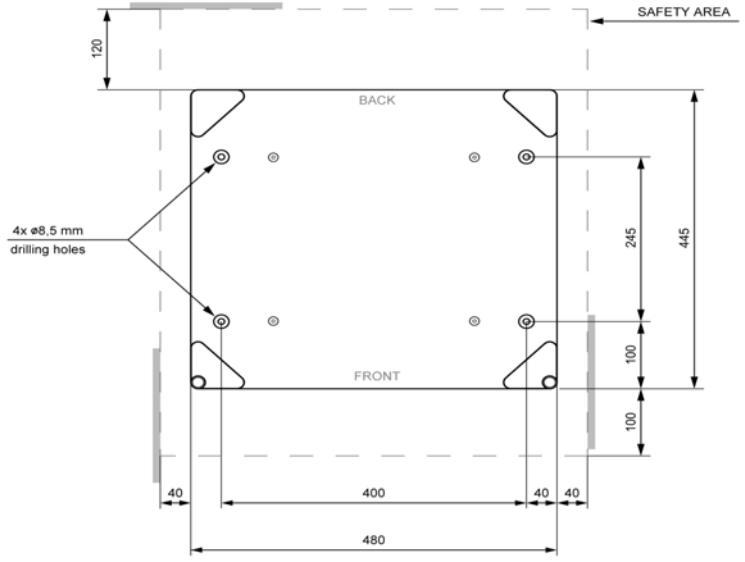
See figure in step 2 on page 29 for the layout location of these holes that must be provided in the bench top.

NOTE The fastening material is not part of this kit.

1 Identify the final position of the instrument on the bench according to the specifications given below.



2 Drill the 4 holes in the bench. Either use the attenuation unit as a model or prepare the holes according to the figure below.



3 Position the attenuation unit on the bench. The snap fasteners must be oriented to the front and the prepared holes in the attenuation unit must stand above the drill-holes in the bench.

4 Use the chosen screws or bolts to fix the attenuation unit to the bench.

Securing the LC to the attenuation unit

When Whenever the instrument is installed onto the attenuation unit in the mobile lab.

Preparations Install the handle plate to the 1220 Infinity LC Instrument (see "Installing the Handle Plate to the 1220 Infinity LC Instrument" on page 20).

Install the attenuation unit to the bench (see "Installing the Attenuation Unit to the Bench" on page 28).

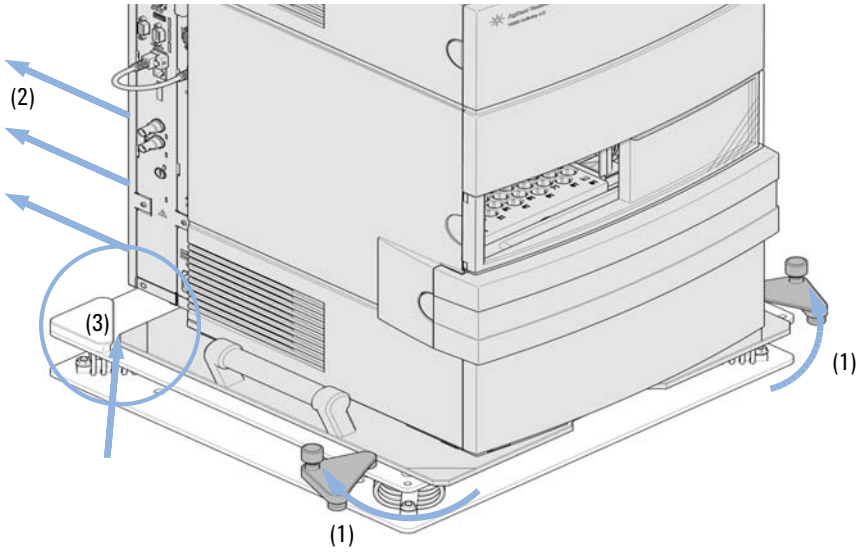
WARNING

Personal injury or damage to the system

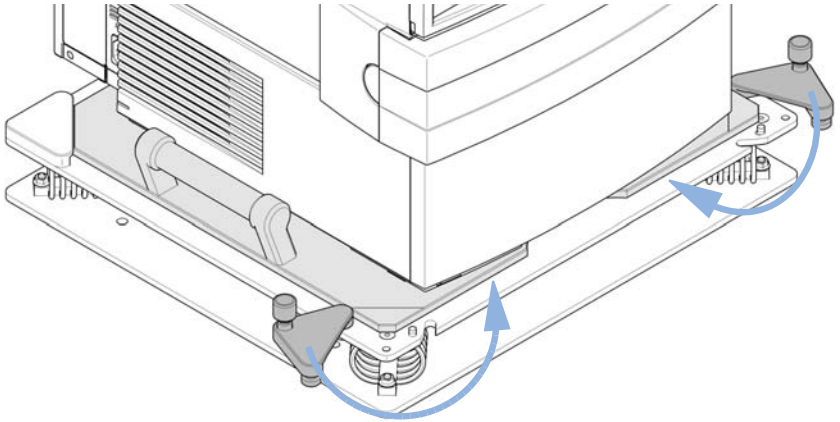
The system is bulky and heavy.

➔ Lift the instrument with at least two persons.

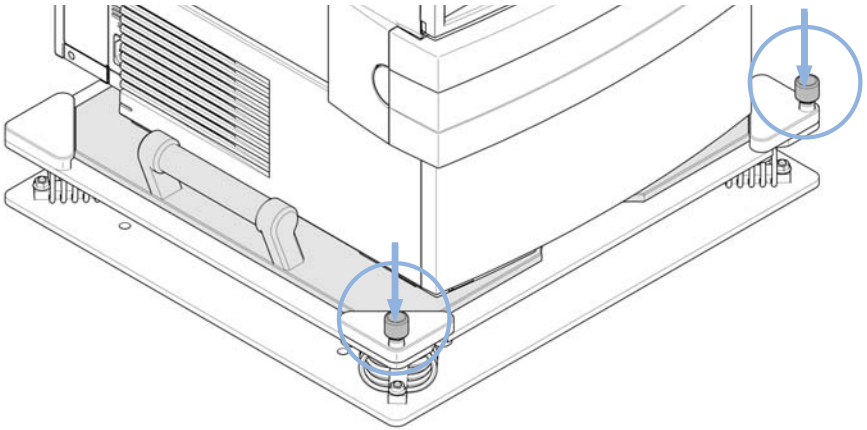
1 Open the fixing angles (1) and slide the instrument on the handling plate onto the attenuation unit (2). Verify that it is completely fixed by the two rear retaining brackets (3).



2 Close the two front retaining brackets.



3 Secure the front retaining brackets by pressing the arrester button.



NOTE The two front retaining brackets must always get closed and secured by pressing the arrestor button. They will not secure the instrument if not properly closed.

4
General Operation Instructions

General Operation Instructions 34

This chapter provides general operation information.

General Operation Instructions

General Operation Instructions

NOTE Please note that the design of the *1220 Infinity mobile solution* is intended for protecting the instrument from influences during transit. Analytical measurement however has to be conducted under stationary conditions.

NOTE Operating the 1220 Infinity LC in a mobile lab environment can require special equipment or facilities to comply with local safety regulations (e.g. special solvent waste and storage containers). Please verify that these regulations are met before you operate the 1220 Infinity LC in your mobile lab.

Preparing transit and relocation

transit:	1220 Infinity Instrument installed on the attenuation unit while the mobile lab is moving.
relocation:	Moving the 1220 Infinity Instrument to or from the mobile lab.

- Park the arm of the autosampler before relocation or transit.
- Remove the solvent bottles from the solvent cabinet and store them in a proper safety storage.
- Verify that the retaining brackets on the attenuation unit are properly locked when the instrument is on the attenuation unit (see "Securing the LC to the attenuation unit" on page 31).
- Store the sample vials in a safe place during relocation and transit. The sample tray is not a proper storage place.

General Operation

Use sealed solvent bottle caps and waste containers to prevent dangerous vaporization. More information can be found in the chapter "Consumables" on page 36 in this manual and also on the internet:
www.agilent.com/chem/safetycaps

5 Consumables

Consumables 36

This chapter gives an overview of the recommended consumables.

Consumables

Safety Cap I with 1 shutoff-valve (GL45) (5043-0225)
(Comes with Venting valve (5043-0232))

Venting valve (5043-0232) with 1 µm PTFE membrane

PEHD waste can (5043-0243)
Comes with a S60 safety cap (5043-0227) including 4 ports and 1 leak port.
The Charcoal filter ((5043-0230) must be ordered seperately.

Charcoal filter ((5043-0230)

6 Appendix

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This chapter provides addition information on safety and web.

General Safety Information

WARNING

A WARNING

alerts you to situations that could cause physical injury or death.

➔ Do not proceed beyond a warning until you have fully understood and met the indicated conditions.

CAUTION

A CAUTION

alerts you to situations that could cause loss of data, or damage of equipment.

➔ Do not proceed beyond a caution until you have fully understood and met the indicated conditions.

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It will provide also the latest firmware of the modules for download.

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In This Book

This manual contains information about the Agilent 1220 Infinity LC Mobile Upgrade Kit G4292.

The manual describes the following:

- introduction,
- site requirements and specifications,
- installation,
- general operating intstructions.

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